## AMENDMENT AND PRESENTATION OF CLAIMS

Please replace all prior claims in the present application with the following claims, in which claims 15 and 39 have previously been canceled without prejudice or disclaimer, claim 47 is currently amended, and no claims are withdrawn from consideration, currently amended, or newly presented.

1. (Previously Presented) A programmable access device for use in a network access system, said programmable access device comprising:

first and second network interfaces through which packets are communicated with a network;

a packet header filter and a forwarding table, wherein the forwarding table is utilized to forward packets between the first and second network interfaces, and wherein said packet header filter identifies messages received at one of the first and second network interfaces on which policy-based services are to be implemented and passes identified messages via a message interface to an external processor included in said network access system for implementation of the policy-based services by the external processor, wherein said packet header filter passes all other received messages through the packet header filter to an other processor; and

a control interface through which said packet header filter and said forwarding table are programmed.

2. (Original) The programmable access device of Claim 1, wherein the packet header filter receives packets directly from the first network interface.

3. (Original) The programmable access device of Claim 2, wherein the packet header filter is a first packet header filter, and wherein the programmable access device further comprises a second packet header filter that receives packets directly from the second network interface.

4. (Original) The programmable access device of Claim 1, wherein the packet header filter filters packets for service processing based upon protocol information pertaining to protocol layers higher than layer 3.

5. (Original) The programmable access device of Claim 1, and further comprising a policer that polices packets by reference to traffic parameters.

6. (Original) The programmable access device of Claim 5, wherein the policer comprises a marker that marks packets that do not conform with the traffic parameters.

7. (Original) The programmable access device of Claim 1, and further comprising at least a usage monitor that monitors at least one traffic type.

8. (Original) The programmable access device of Claim 7, wherein the usage monitor has an associated threshold that when exceeded generates a reporting event for the usage monitor.

9. (Previously Presented) The programmable access device of Claim 8, and further comprising a reporting interface that communicates the reporting event to the external processor.

10. (Original) The programmable access device of Claim 9, wherein the associated threshold comprises a session activity level threshold.

11. (Original) The programmable access device of Claim 7, and further comprising a fault monitor.

12. (Original) The programmable access device of Claim 1, and further comprising one or more output buffers for outgoing packets.

13. (Original) The programmable access device of Claim 12, and further comprising a scheduler associated with the one or more output buffers that schedules the transmission of outgoing packets within the one or more output buffers.

14. (Original) The programmable access device of Claim 13, wherein the scheduler supports multiple quality of service classes.

15. (Canceled)

16. (Previously Presented) The programmable access device of Claim 1, and further comprising at least a programmable monitor that monitors at least one programmed traffic type.

17. (Previously Presented) The programmable access device of Claim 1, and further comprising a policer that polices packets by reference to programmed traffic parameters.

18. (Previously Presented) The programmable access device of Claim 1, and further comprising one or more output buffers for outgoing packets and an associated scheduler that transmits the outgoing packets from the one or more output buffers through the second network interface according to a programmed methodology.

19. (Original) The programmable access device of Claim 1, wherein the identified message is a session initiation protocol (SIP) message.

20. (Original) The programmable access device of Claim 1, wherein the identified message is an Internet Group Multicast Protocol (IGMP) message.

21. (Original) The programmable access device of Claim 1, wherein the identified message is a Resource Reservation Protocol (RSVP) message.

22. (Original) The programmable access device of Claim 1, and further comprising a plurality of protocol-specific state machines for a respective plurality of protocol types.

23. (Previously Presented) The programmable access device of Claim 22, wherein said plurality of protocol-specific state machines include a transport control protocol (TCP) state machine that, responsive to a control command, provides preferential treatment to a particular TCP session.

24. (Previously Presented) The programmable access device of Claim 1, and further comprising a reporting interface through which the programmable access device reports state information for active sessions to the external processor.

25. (Original) The programmable access device of Claim 24, wherein the reporting interface reports the state information for an active session in response to allocation of service to a new external service controller.

26. (Previously Presented) A method of packet handling in a programmable access device of a network access system, said method comprising:

in response to receiving a series of packets at a first network interface of a programmable access device, filtering the series of packets by a packet header filter at the programmable access device to identify messages upon which policy-based services are to be implemented;

passing identified messages to an external processor included in the network access system for implementation of the policy-based services by the external processor;

for messages that are not identified, routing packets by reference to a forwarding table in the programmable access device and outputting the routed packets at a second network interface of the programmable access device; and

programming the packet header filter and the forwarding table through a control interface of said programmable access device.

27. (Previously Presented) The method of Claim 26, and further comprising receiving packets at the packet header filter directly from the first network interface.

28. (Original) The method of Claim 27, wherein the packet header filter is a first packet header filter, said method further comprising receiving packets at a second packet header filter of the programmable access device directly from the second network interface.

29. (Original) The method of Claim 26, wherein filtering comprises filtering packets for service processing based upon protocol information pertaining to protocol layers higher than layer 3.

30. (Original) The method of Claim 26, and further comprising policing packets by reference to traffic parameters utilizing a policer in the programmable access device.

31. (Original) The method of Claim 30, wherein policing comprises marking packets that do not conform with the traffic parameters.

32. (Previously Presented) The method of Claim 26, wherein the programmable access device includes at least a usage monitor, said method further comprising monitoring at least one traffic type in said series of packets.

33. (Original) The method of Claim 32, wherein the usage monitor has an associated threshold, said method further comprising generating a reporting event for the usage monitor when the threshold is exceeded.

34. (Original) The method of Claim 33, and further comprising communicating the reporting event to an external processor via a reporting interface.

35. (Original) The method of Claim 34, wherein generating a reporting event comprises generating a reporting event in response to a session activity level threshold.

36. (Original) The method of Claim 32, and further comprising monitoring faults utilizing a fault monitor in said programmable access device.

37. (Original) The method of Claim 26, and further comprising buffering outgoing packets in one or more output buffers in said programmable access device.

38. (Original) The method of Claim 37, and further comprising scheduling the transmission of outgoing packets within the one or more output buffers to support multiple quality of service classes.

39. (Canceled)

40. (Previously Presented) The method of Claim 26, wherein the programmable access device further includes at least one programmable monitor, said method further comprising monitoring at least one programmed traffic type utilizing said at least one programmable monitor.

41. (Previously Presented) The method of Claim 26, wherein said programmable access device includes a policer, said method further comprising policing packets by reference to programmed traffic parameters.

42. (Previously Presented) The method of Claim 26, wherein the programmable access device includes one or more output buffers for outgoing packets and an associated scheduler, said method comprising transmitting the outgoing packets from the one or more output buffers through the second network interface according to a programmed methodology.

43. (Original) The method of Claim 26, wherein the identified message is a session initiation protocol (SIP) message.

44. (Original) The method of Claim 26, wherein the identified message is an Internet Group Multicast Protocol (IGMP) message.

45. (Original) The method of Claim 26, wherein the identified message is a Resource Reservation Protocol (RSVP) message.

46. (Original) The method of Claim 26, and further comprising maintaining in said programmable access device a plurality of protocol-specific state machines for a respective plurality of protocol types.

47. (Currently Amended) The method of Claim 46 ~~26~~, wherein said plurality of protocol-specific state machines include a transport control protocol (TCP) state machine, and

wherein the method further comprises providing preferential treatment to a particular TCP session by said programmable access device in response to a command.

48. (Original) The method of Claim 26, and further comprising reporting state information for active sessions to an external processor via a reporting interface of the programmable access device.

49. (Original) The method of Claim 48, wherein reporting comprises reporting the state information for an active session in response to allocation of service to a new external service controller.

50. (Previously Presented) A device for use in a network access system comprising:

a first network interface through which packets are communicated with a first network;

a second network interface through which packets are communicated with a second network;

a message interface coupled to an external processor that is configured to implement policy-based services;

a policer configured to discard packets determined as nonconforming to a first traffic parameter;

a first packet header filter coupled to the first network interface and to the message interface, wherein the first packet header filter identifies messages, received from the first network interface, on which policy-based services are to be implemented, wherein the first packet header filter passes the identified messages to the external processor via the message interface and passes all other messages received from the first network interface to the policer;

a marker configured to discard packets determined as nonconforming to a second traffic parameter;

a control interface through which said first packet header filter is programmed; and

a second packet header filter, different from the first packet header filter, coupled to the second network interface, wherein the second packet header filter identifies messages, received from the second network interface, on which policy-based services are to be implemented, wherein the second packet header filter passes the identified messages to the external processor via the message interface and passes all other messages received from the second network interface to the marker.